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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,720	03/10/2005	Takeo Yamaguchi	NAII123496	5176

26389 7590 09/22/2006

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EXAMINER
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RHEE, JANE J

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/506,720

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Jane Rhee

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/7/09
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asakawa et al. (6565763) in view of Yamaguchi et al. (EP 1202365).

As to claim 1, Asakawa et al. discloses a membrane comprising a porous substrate (col. 6 line 14), the porous substrate is comprised of a I) a second polymer which is at least one selected from the group of polyolefins (polyethylene in col. 14 lines 16), and II) a third polymer having a double bond in the molecule of the third polymer (polynorbornene in col. 14 line 21), and the porous substrate comprises a crosslinked second polymer wherein the second polymers are crosslinked with one another (col. 14 lines 11-13 discloses that the polymers are capable of crosslinking by irradiation with the energy beam).

The recitation "electrolyte membrane" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to

stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Asakawa et al. fail to disclose wherein pores of the porous substrate are filled with a first polymer having proton conductivity. Yamaguchi et al. teaches a porous electrolytic membrane for fuel cell wherein the pores of the porous substrate are filled with a first polymer having proton conductivity (col. 5 paragraph 0034, col. 4, paragraph 0023) for the purpose of providing integrating the cathode and electrolyte so that the integrated product may facilitate the handling of the thin electrolyte membrane (col. 7 paragraph 0049 and 0050).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Asakawa et al. with the pores of the porous substrate that are filled with a first polymer having proton conductivity in order to integrate the cathode and electrolyte so that the integrated product may facilitate the handling of the thin electrolyte membrane (col. 7 paragraph 0049 and 0050) as taught by Yamaguchi et al.

As to claim 2, Asakawa et al. discloses wherein the third polymer is of the polymers having an alicyclic skeleton structure (col. 14 line 21 discloses polynorbornene which has an alicyclic skeleton structure).

As to claim 3, Asakawa et al. discloses wherein the third polymer is polynorbornene (col. 14 line 21).

As to claim 4, Asakawa et al. discloses the second polymer comprises polyethylene (col. 14 line 16).

As to claim 5, Asakawa et al. discloses that the second polymer is polyethylene and the third polymer is polynorbornene (col. 14 lines 16 and 21).

As to claim 6, Asakawa et al. fail to disclose that one end of the first polymer is bound to surface of pores of the porous substrate. Yamaguchi et al. teaches a porous electrolytic membrane for fuel cell wherein one end of the first polymer is bound to surface of pores of the porous substrate for purpose of the structure of the membrane to be supported by the substrate thus the polymer may not be easily released from the pores and the structure of the membrane is stable even at elevated temperatures unless the polymer is thermally decomposed (col. 5-6 paragraph 0035).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Asakawa et al. with the one end of the first polymer that is bound to the surface of the pores of the porous substrate in order for the structure of the membrane to be supported by the substrate thus the polymer may not be easily released from the pores and the structure of the membrane is stable even at elevated temperatures unless the polymer is thermally decomposed (col. 5-6 paragraph 0035) as taught by Yamaguchi et al.

As to claim 7, Asakawa et al. fail to disclose that the pores of the porous substrate are further filled with fourth polymer having proton conductivity. Yamaguchi et al. teaches a porous electrolytic membrane for fuel cell wherein the pores of the porous substrate are filled with a two polymers (Yamaguchi et al. discloses a homopolymer and a graft polymerized polymer during the polymerization process paragraph 0033) having proton conductivity (col. 5 paragraph 0034, col. 4, paragraph 0023) for the purpose of

providing desired proton conductivity to integrate the cathode and electrolyte so that the integrated product may facilitate the handling of the thin electrolyte membrane (col. 7 paragraph 0049 and 0050).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, the pores of the porous substrate are that are further filled with fourth polymer having proton conductivity in order to provide the desired proton conductivity to integrate the cathode and electrolyte so that the integrated product may facilitate the handling of the thin electrolyte membrane (col. 7 paragraph 0049 and 0050).

As to claims 8-10, Asakawa et al. discloses a direct methanol solid polymer fuel cell comprising the membrane disclosed above (col. 46 line 12-13).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Jane Rhee", with a stylized, cursive script.

Jane Rhee  
September 13, 2006